Chapter 7

Cautions

Contents Page

1. Other warnings and precautions 7-2
2. Notice 7-3

Chapter 7 Cautions

Other warnings and precautions

Warnings in operating and handling

(1) This IPM should be used in products within their absolute maximum rating (voltage, current, temperature, etc.). This IPM may be broken if used beyond the rating.

(2) The equipment containing this IPM should have adequate fuses or circuit breakers to prevent the equipment from causing secondary destruction (ex. fire, explosion etc…).

(3) Use this IPM within their reliability and lifetime under certain environments or conditions. This IPM may fail before the target lifetime of your products if used under certain reliability conditions.

(4) Be careful when handling this IPM for ESD damage. (It is an important consideration.)

(5) When handling the IPM, hold them by the case (package) and don't touch the leads and terminals.

(6) It is recommended that any handling of the IPM is done on grounded electrically conductive floor and tablemats.

(7) Before touching the IPM, Discharge any static electricity from your body and clothes by grounding out through a high impedance resistor (about 1MΩ)

(8) When soldering, in order to protect the IPM from static electricity, ground the soldering iron or soldering bath through a low impedance resistor.

(9) Consider the possible temperature rise not only for the junction and case, but also for the outer leads.

(10) Do not directly touch the leads or package of the IPM while power is supplied or during operation in order to avoid electric shock and burns.

(11) The IPM is made of incombustible material. However, if the IPM fails, it may emit smoke or flame.

(12) When operating the IPM near any flammable place or material may cause the IPM to emit smoke or flame in case the IPM become even hotter during operation. Design the arrangement to prevent the spread of fire.

(13) The IPM should not used in an environment in the presence of acid, organic matter, or corrosive gas (hydrogen sulfide, sulfurous acid gas etc.)

(14) The IPM should not used in an irradiated environment since they are not radiation-proof.

(15) During open short test, the internal of the IPM might explode instantaneously and the resin mold package might be blown off when high voltage is applied to the low voltage terminals. Make sure in your design that during open short test, high voltage will not be applied to the low terminals. To avoid accidents and explosion damage if high voltage is applied, use fuses in your design.

Precautions in storage

(1) The IPM must be stored at a standard temperature of 5 to 35℃ and relative humidity of 45 to 75%. If the storage area is very dry, a humidifier may be required. In such a case, use only deionized water or boiled water, since the chlorine in tap water may corrode the leads.

(2) The IPM should not be subjected to rapid changes in temperature to avoid condensation on the surface of the IPM. Therefore store the IPM in a place where the temperature is steady.

(3) The IPM should not be stored on top of each other, since this may cause excessive external force on the case.

(4) The IPM should be stored with the lead terminals remaining unprocessed. Rust may cause presoldered connections to fail during later processing.

(5) The IPM should be stored in antistatic containers or shipping bags.

(6) Under the above storage condition, use the IPM within one year.

Chapter 7 Cautions

NOTICE

(1) The contents will subject to change without notice due to product specification change or some other reasons. In case of using the products stated in this document, the latest product specification shall be provided and the data shall be checked.

(2) The application examples in this note show the typical examples of using Fuji products and this note shall neither assure to enforce the industrial property including some other rights nor grant the license.

(3) Although Fuji Electric Co., Ltd. continually strives to enhance product quality and reliability, a small percentage of semiconductor products may become faulty. When using Fuji Electric semiconductor products in your equipment, be sure to take adequate safety measures such as redundant, flame-retardant and fail-safe design in order to prevent a semiconductor product failure from leading to a physical injury, property damage or other problems.

(4) The product introduced in this Application note is intended for use in the following electronic and electrical equipment which requires ordinary reliability:

- Inverter for Compressor motor or fan motor for Room Air Conditioner
- Inverter for Compressor motor for heat pump applications.

(5) If you need to use a semiconductor product in this application note for equipment requiring higher reliability than normal, such as listed below, be sure to contact Fuji Electric Co., Ltd. to obtain prior approval. When using these products, take adequate safety measures such as a backup system to prevent the equipment from malfunctioning when a Fuji Electric's product incorporated in the equipment becomes faulty.

- Transportation equipment (mounted on vehicles and ships)
- Trunk communications equipment
- Traffic-signal control equipment
- Gas leakage detectors with an auto-shutoff function
- Disaster prevention / security equipment
- Safety devices, etc.

(6) Do not use a product in this application note for equipment requiring extremely high reliability such as:

- Space equipment
- Airborne equipment
- Atomic control equipment
- Submarine repeater equipment
- Medical equipment

(7) All rights reserved. No part of this application note may be reproduced without permission in writing from Fuji Electric Co., Ltd.

(8) If you have any question about any portion of this application note, ask Fuji Electric Co., Ltd. or its sales agencies. Neither Fuji Electric Co., Ltd. nor its agencies shall be liable for any injury or damage caused by any use of the products not in accordance with instructions set forth herein.